

Which Environments for $G \times E$? A User Perspective on the Roles of Trauma and Structural Discrimination in the Onset and Course of Schizophrenia

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Now that schizophrenia researchers may be moving from unilateral molecular genetic approaches to models including so-called gene-environment interactions, the question rises which environments may be considered for such research and how a user perspective may inform the field. It is argued that trauma and stigma, or perhaps better structural discrimination, represent 2 important environmental factors that deserve more attention. Experiential evidence, collected by users, suggests that trauma in childhood and/or adulthood, before, during, and after the onset of schizophrenia, as well as stigma/structural discrimination, may play important roles in the onset and course of the disorder. A certain reluctance on the part of the professional schizophrenia research community to take these variables as serious as, eg, interesting but inconclusive etiological signals from prenatal hypoxia, prenatal folate deficiency, and prenatal toxoplasmosis is suggested. This article outlines the concepts of trauma and stigma and their negative consequences for the onset and course of schizophrenia. The importance of research into these factors and their possible relevance for gene-environment interactions is discussed. While gene-environment interaction research using these variables is indicated and may possibly prove productive, it is argued that such efforts may not be useful if no subsequent attempt is made to translate the results to the level of interventions, codeveloped by users, eg, in the area of coping with the vicious circle of environmental adversity that users can become exposed to.

Key words: schizophrenia/psychosis/stigma/trauma/gene-environment interaction/discrimination

Introduction

Research has shown that both nature and nurture likely play an important role in the etiology of psychopathology.¹ Although the scientific evidence for a genetic contribution to schizophrenia liability is very strong, molecular genetic research in schizophrenia is plagued by lack of replicable results and unresolved ethical issues from a user perspective.² Reviews by the psychiatric schizophrenia research community accepts a possible “precipitating” role of environmental factors, particularly cannabis use, prenatal infection or malnutrition, perinatal complications, and a history of winter birth.³ However, work by users reporting experiential evidence tends to focus on environmental factors that are generally not seen as likely contributors to schizophrenia risk by the psychiatric research community: trauma and stigma—or perhaps better structural discrimination.^{4,5} To the degree that these factors represent variables indexing pervasive exposure to social adversity, their relevance for gene-environment interactions involved in the onset and course of schizophrenia seems self-evident. Nevertheless, their possible contribution seems neglected in (scant) research about gene-environment interactions. In the current article, these 2 environmental factors are therefore highlighted, from a user perspective, as possible environmental risk factors with relevance for modeling gene-environment interactions and the development of new treatment strategies.

Trauma

The question raises to what degree the context of the psychiatric scientific debate surrounding research on trauma and schizophrenia is always entirely objective. For example, objectively inconclusive evidence of a putative association between toxoplasmosis and schizophrenia may be referred to as “examples of microbes that may have an etiological relationship to a major psychiatric disorder,”⁶ while objectively inconclusive evidence of a putative association between trauma and major psychiatric disorder may be described as a possible “iatrogenic induction of memories of abuse by psychotherapists.”⁷ Conversely, evidence for a link between trauma and psychosis is sometimes presented somewhat uncritically⁸ and becomes,

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though still suggestive, less conclusive when analysed more conservatively.⁹ In any case, it may be important to accept that there are likely multiple pathways to psychosis. While trauma may play a role in a subgroup of people with psychosis, there are many others with no history of trauma. Even then, however, it is possible that some of these are prone to exacerbation and maintenance of their psychotic experiences by exposure to trauma associated with the subjective experience of psychosis or through subsequent victimization in the community.¹⁰ To the degree that multiple risk factors may play a role, it seems important not to be a priori dismissive or selectively enthused by one at the expense of another, particularly with regard to outdated notions of separation along “biological” and “social” lines.

Trauma is a broad concept which includes physical, sexual, emotional and psychological abuse, neglect, and bullying. Research has suggested that many people with schizophrenia have been exposed to significant trauma, both after and before the onset of their disorder.¹¹ One inconclusive prospective study stands out,¹² which has been suggested may be the result of the exposure being modified over the course of the study.¹³ Reviews suggest an excess of victimizing experiences in people with psychosis, many of which may have occurred during childhood.⁸ The findings therefore are compatible with a social contribution to etiology.¹¹ Nevertheless, there remain a number of conceptual and methodological issues with regard to the putative link between trauma and psychosis, indicating a need for more research before definitive conclusions can be drawn about whether childhood trauma is a cause for psychosis.¹⁴ There are, however, sources suggesting plausibility for a relationship between the experience of trauma and psychosis.¹⁵ Findings by Goff and colleagues¹⁶ suggest that in some chronically psychotic patients, childhood trauma and a tendency to dissociate may represent relevant factors contributing to age of onset and clinical characteristics. In their study, childhood abuse was associated with an early age of onset, more dissociative symptoms, and more frequent relapses. Goff and coworkers¹⁶ also suggest that in some chronically psychotic patients, a history of childhood abuse may contribute to the symptomatology and course of illness. In agreement with this are the findings by Whitfield and colleagues¹⁷ and Hammersley and colleagues,¹⁸ who reported a relationship between histories of childhood trauma and histories of hallucinations, whereas Janssen and colleagues¹⁹ suggested, in a semi-prospective study, that early childhood trauma increases the risk for any positive psychotic symptom. In addition, at least one report is suggestive for an underlying mechanism of gene-environment interaction: Spaunwen and colleagues²⁰ reported data suggesting that exposure to psychological trauma may increase the risk of psychotic symptoms in people with a prior vulnerability to psychosis. Suggestively, another study reported

an interaction between trauma and another risk factor associated with gene-environment interaction in schizophrenia (cannabis).²¹ Lataster and colleagues,²² in a cross-sectional study, found that victimization in childhood may give rise to subclinical expression of psychosis, as the earliest evidence of gene-environment interaction.

Mechanisms of Trauma

Different mechanisms have been invoked to explain a possible association between trauma and schizophrenia. The experience of abuse may create a physical²³ and/or psychological^{24,25} vulnerability for the development of psychotic symptoms. The results of a study by Lataster and colleagues²² suggest that associations between childhood victimization and psychosis can be understood in a developmental framework of onset of at-risk mental states in early adolescence. Data from their study suggest that the traumatic experience of being bullied may feed the cognitive and biological mechanisms underlying formation of psychotic ideation.²² Bak and colleagues²⁶ similarly suggest that early experience of trauma may create lasting cognitive and affective vulnerabilities to develop clinical symptoms arising out of early, nonclinical psychotic experiences. The results of their study suggest that exposure to early trauma predisposes persons to suffer from more emotional distress associated with psychotic experiences and less perceived control over these experiences, compared with those without a traumatic history. Collip and colleagues²⁷ invoke an underlying mechanism of “sensitization”—psychological and physical—explaining the link between trauma and psychosis.

Trauma may also impact on the course of psychosis. Thus, child abuse causes prolonged suffering, and it may increase the distress experienced by those who develop a psychotic mental illness in adulthood, resulting in worse outcomes.¹⁴

Trauma in Adulthood and Trauma Associated With Psychosis

In studying and trying to understand the impact of trauma in people with schizophrenia, trauma in adulthood should not be overlooked. People with severe mental illnesses are much more likely to be exposed to traumatic events than the general population. The increase in interest in the effects of adult trauma in people suffering from psychosis has extended not only to the traumatizing effect of psychotic experiences but also to the effect of treatment and societal rejection. The subjective impact of a psychotic breakdown can be profound and potentially result in loss of social roles, hopes, and aspirations and lead to stigmatization, trauma, and even elevated suicide risk²⁸. Therefore, the possible role of trauma in psychosis is complicated and may involve a vicious circle of traumatizing effects, starting

with childhood exposure impacting on vulnerability and adult repeated retraumatization associated with the onset of psychotic symptoms and their treatment.²⁹

Stigma

Also important in understanding the course, but possibly also the onset, of schizophrenia is the concept of stigma—or perhaps better structural discrimination, against both patients and their relatives.^{30,31} Following Link and Phelan,³² I apply the term stigma when elements of labeling, stereotyping, separation, status loss, and discrimination co-occur in a power situation that allows the components of stigma to unfold. Emotional responses and reactions are also important in conceptualizing stigma³³ and are therefore included in my conceptualization. Corrigan and Wassel³⁴ differentiate between 3 kinds of stigma: public stigma, self-stigma, and label avoidance. These factors likely may all have an impact on the course and possibly also on the onset of schizophrenia. Schizophrenia has been found to be one of the most stigmatizing conditions.³⁵ Experiences of stigma and discrimination can be found in many areas covering almost all aspects of daily life, including health and psychiatric care.³⁶ Stigma creates a vicious cycle of alienation and discrimination. This in turn can lead to social isolation, inability to work, alcohol or drug abuse, homelessness, or excessive institutionalization, all of which decrease the chance of recovery (<http://www.openthedoors.com>). One of the main obstacles to the successful treatment³⁷ (<http://www.openthedoors.com>) and management of schizophrenia is the stigma that is oft associated with the disorder. The stigma associated with schizophrenia can therefore also have a negative impact on the course and outcome of the disorder (<http://www.openthedoors.com>).

Results of a qualitative study by Schulze and Angermeyer³¹ revealed 4 dimensions of stigma: interpersonal interaction, structural discrimination, public images of mental illness, and access to social roles. Stigma or anticipated stigma can also have consequences for labeling,³⁴ which may affect not only the course but also the onset of schizophrenia. For example, a delay in treatment seeking because of anticipated stigma might cause a first episode to become more severe. Affective reactions like anger, depression, anxiety, feelings of isolation, guilt, and shame are also possible consequences of stigmatization.³⁸ In addition, stigma has negative consequences in the domains of stress³⁹ and relapse.^{39,40} Social interactions can be disrupted and occupational functioning can also be negatively affected. This, in turn, leads to a higher vulnerability to relapse.⁴⁰ Stigma associated with mental illness also harms the self-esteem of many people who have serious mental illnesses and may result in self-stigma.⁴¹ Self-stigma has a negative influence on individuals' social status, social network, and self-esteem.⁴²

Stigma experiences have led many consumers to maintain a secrecy, which not only is uncomfortable but also may contribute to symptoms like anxiety, depression, and paranoia. Fears about stigma appear to result in reluctance to apply for jobs, education, insurance, or even to seek treatment. By making productive work less available, limiting treatment resources (eg, insurance) and discouraging treatment seeking, by contributing to social isolation, and generating fears about disclosure and community rejection, stigma experiences may produce conditions that are virtually antithetical to the goals of recovery.⁴³ Life goals and the opportunities that define them are impaired by the stigma of mental illness.³⁴

Mechanisms of Stigma

Stigma can affect people with schizophrenia through different mechanisms. According to the vulnerability-stress-coping model, an interaction of vulnerability with stress-increasing life circumstances is responsible for the development and recurrence of psychotic episodes.⁴⁴ This indicates that stigma may lead to worsening of symptoms and relapse via a pathway of stress. In this way, onset, course, and prognosis of the disorder can be influenced negatively. The stigma of severe mental illness likely interferes with the ability of people with severe mental illness to reintegrate into the community and may, by increasing ambient psychosocial stress, increase the likelihood of future relapse.³⁹

Another mechanism through which stigma can influence the course of the disorder is self-fulfilling prophecies. These can be triggered by prejudice and negative stereotypes.⁴⁵

Many people experiencing their first episode of psychosis experience or perceive adverse social reactions even if the onset of their illness was very recent. There are potentially dramatic changes in how the person perceives him- or herself as a result of this episode. It is possible that biases in cognition relating to self and social knowledge may sensitize the individual to interpret future anomalous or stressful experiences in an increasingly psychotic manner. The nature of these appraisals may confer a psychological vulnerability, which increases the probability of subsequent psychotic episodes.²⁸

To the degree that stigma may lead to worsening of symptoms and relapse through a pathway of stress and to the degree that stress interacts with genetic vulnerability (see review by elsewhere in this issue), gene-stigma interactions may be expected. To the degree that exposure to stigma is almost universally experienced by users, gene-stigma interactions may explain a large proportion of the variance in course and outcome. Nevertheless, even though the hypothesis of gene-stigma interactions is scientifically reasonable, no research to date, as far as I am aware [PUBMED: stigma AND (course OR outcome) AND schizophr*], has examined stigma in quantitative studies of course and outcome in schizophrenia,

let alone as a variable making up gene-stigma interaction terms. This piece of data may be interesting by itself: it shows that stigma is examined essentially in a context of “social psychiatry,” even though it probably represents the most severe stressor impacting on the physiology and psychology of patients with schizophrenia, the genetic constitution of whom will likely moderate the person’s response to this enduring source of environmental adversity. In addition, stigma may interact with the person’s earlier experience to trauma and the physiological and biological alterations induced by early adversity.

Discussion

Recovery from mental illness involves much more than recovery from the illness and its symptoms^{46,47} and does not necessarily involve the use of formal mental health services.²⁹ Trauma and stigma are 2 factors people with schizophrenia very often have to deal with. Both are important environmental factors that should be included in research examining gene-environment interactions in schizophrenia. However, while gene-environment interactions may be important, this type of research ultimately only is relevant if it contributes to treatment. The negative impact trauma and stigmatization can have on the lives of people with schizophrenia makes intervention methods and research about these topics highly important. Coping with trauma and coping with stigma are both important elements of the general adaptation strategies employed by people with schizophrenia. Coping methods should therefore be incorporated in intervention methods for schizophrenia and psychosis and be developed in participation with users, who have knowledge about the impact and sources of environmental adversity. Intervening early in the course of the disorder to address self-stigmatization may enable young people to acquire positive attitudes toward themselves and the future.⁴⁸ Trauma histories in subjects with psychotic experiences or people with a diagnosis of schizophrenia suggest a negative impact on coping resources that contributes to psychotic symptom formation. Attention for more “functional” coping resources may reduce the probability of progressing from a state of psychosis vulnerability to experiencing overt psychotic symptoms and reduction in social functioning.²⁶ Lysaker and colleagues⁴⁹ suggest that stigma and symptoms are phenomena which exert complex influences over one another over time which may not be captured by cross-sectional assessment. This underlines the need for longitudinal research capturing coping experiences in the flow of daily life of users.⁵⁰ In addition, the study of psychological mechanisms of psychotic symptoms is particularly important in view of the interest in preventing individuals from making “transitions” from nonclinical to clinical psychotic states.⁵¹ Also, research into protective factors in trauma

and stigma is important, and including mental health consumers in research about their lives is not only likely to lead to a better therapeutic product for professionals but may also be beneficial for empowerment⁴³ and the development of user-led forms of treatment and psychoeducation.

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